Mulith's i-line litho for 0.1 µm GaAs

Mulith Inc (Nashua, NH, USA) has extended a unique optical lithography concept to the production of GaAs ICs.

Developed by president Greyson Gilson (while working on various independent lithography research programs at Dartmouth, Clark University, and the University of Lowell), Reference distribution aerial Image Formation (RIF) is a holographic technique which was being evaluated by the former GCA Inc at the time the company folded. RIF is suitable for feature sizes under 0.10 µm which could be used with either i-line steppers or scanners without the use of deep-UV wavelengths or phase-shift masks. The general concept was initially unveiled last April.

"Inadequate depth of field of optical steppers has practically precluded their use in GaAs device manufacturing because the process is highly non-planar," said Gilson. "GaAs manufacturers have had to resort to expensive e-beam and x-ray tools to overcome the depth-of-field problem, but at a cost of low throughputs. Now, with the explosive use of GaAs in the communications markets, throughput is becoming a cost-of-ownership issue."

The RIF-based GaAs lithography system is "significantly less expensive" than existing optical, electron-beam, and x-ray tools, and offers higher throughputs and greater depth of field than other established wafer-exposure techniques.

"With conventional lithographic tools on the market, minimum feature size and depth of field is limited by the wavelength of light used," Gilson says. "No such fundamental resolution limit exists for the new [wavelength-independent] technology".

RIF creates an interferometric pattern of two light paths to pattern images with feature sizes which current optical lenses can't handle (possibly using Numerical Apertures as low as 0.5 for 0.10 µm).

Mulith is currently seeking offers for technology licenses, joint ventures, or outright acquisition of its RIF lithography and metrology technology.

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EPIGRESS opens new facility

EPIGRESS AB (Lund, Sweden) - which makes single and multi-wafer high-temperature SiC CVD and sublimation systems and SiGe UHV-CVD systems - has inaugurated its new production and office facility in Lund's IDEON Technology and Science Park.

Phase I of the facility will more than triple annual production capacity. A potential future Phase II upgrade will increase capacity further.

Also, overseas service will increasingly be made available through the AIXTRON network.